SECTION II—CLAIMS

1. (Currently Amended) An apparatus comprising:

a substrate including a plurality of conducting layers; and

a nanocomposite inter-layer dielectric (ILD) sandwiched between the conducting layers, wherein the nanocomposite ILD layer comprises a nanocomposite including a polymer having a plurality of nanoclay ~~particles~~ platelets dispersed therein, the nanoclay ~~particles~~ platelets having ~~a high~~ an aspect ratio equal to or greater than about 50.

2. (Canceled)

3. (Currently Amended) The apparatus of claim 1 wherein the nanoclay ~~particles~~ platelets have an aspect ratio greater than about 200.

4. (Currently Amended) The apparatus of claim 1 wherein the nanoclay ~~particles~~ platelets are ~~platelets or~~ grouped into tactoids.

5. (Currently Amended) The apparatus of claim 1 wherein the nanocomposite comprises less than 25 percent by weight of nanoclay ~~particles~~.

6. (Currently Amended) The apparatus of claim 5 wherein the nanocomposite comprises less than 10 percent by weight of nanoclay ~~particles~~.

7. (Currently Amended) The apparatus of claim 6 wherein the nanocomposite comprises less than 5 percent by weight of nanoclay ~~particles~~.

8. (Currently Amended) The apparatus of claim 7 wherein the nanocomposite comprises less than ½ percent by weight of nanoclay ~~particles~~.

9. (Original) The apparatus of claim 1 wherein the nanoclay comprises natural clays, synthetic clays, modified phyllosilicates, or combinations or blends thereof.

10. (Original) The apparatus of claim 1 wherein the polymer binder comprises a thermally curable polymer.

11. (Currently Amended) An apparatus comprising:

a substrate having a contact surface; and

a nanocomposite solder resist layer placed on the contact surface, wherein the solder resist comprises a nanocomposite including a polymer binder having a plurality of nanoclay ~~particles~~ platelets dispersed therein, the nanoclay ~~particles~~ platelets having ~~a high~~ an aspect ratio equal to or greater than about 50.

12. (Canceled)

13. (Currently Amended) The apparatus of claim 11 wherein the nanoclay ~~particles~~ platelets have an aspect ratio greater than about 200.

14. (Currently Amended) The apparatus of claim 11 wherein the nanoclay ~~particles are~~ platelets [[or]] are grouped into tactoids.

15. (Currently Amended) The apparatus of claim 11 wherein the nanocomposite comprises less than 25 percent by weight of nanoclay ~~particles~~.

16. (Currently Amended) The apparatus of claim 15 wherein the nanocomposite comprises less than 10 percent by weight of nanoclay ~~particles~~.

17. (Currently Amended) The apparatus of claim 16 wherein the nanocomposite comprises less than 5 percent by weight of nanoclay ~~particles~~.

18. (Currently Amended) The apparatus of claim 17 wherein the nanocomposite comprises less than ½ percent by weight of nanoclay ~~particles~~.

19. (Original) The apparatus of claim 11 wherein the nanoclay comprises natural clays, synthetic clays, modified phyllosilicates, or combinations or blends thereof.

20. (Original) The apparatus of claim 11 wherein the polymer binder comprises a thermally curable polymer.

21. (Original) The apparatus of claim 11 wherein the polymer binder comprises a photo-curable polymer.

22. (Currently Amended) The apparatus of claim 11 wherein the substrate comprises:

a plurality of conducting layers; and

a nanocomposite inter-layer dielectric (ILD) sandwiched between the conducting layers, wherein the nanocomposite ILD layer includes a nanocomposite comprising a polymer binder having a plurality of nanoclay ~~particles~~ platelets dispersed therein, the nanoclay ~~particles~~ platelets having ~~a high~~ an aspect ratio equal to or greater than about 50.

23. (Currently Amended) A system comprising:

a substrate having a contact surface;

a nanocomposite solder resist layer placed on the contact surface, wherein the solder resist comprises a nanocomposite including a polymer binder having a plurality of nanoclay ~~particles~~ platelets dispersed therein, the nanoclay ~~particles~~ platelets having ~~a high~~ an aspect ratio equal to or greater than about 50; and

a die attached to and in electrical contact with the contact surface, the die being attached using solder deposited in holes in the nanocomposite solder resist layer.

24. (Canceled)

25. (Currently Amended) The system of claim 23 wherein the nanoclay ~~particles~~ platelets have an aspect ratio greater than about 200.

26. (Currently Amended) The system of claim 23 wherein the nanoclay ~~particles are~~ platelets [[or]] are grouped into tactoids.

27. (Currently Amended) The system of claim 23 wherein the nanocomposite comprises less than 25 percent by weight of nanoclay ~~particles~~.

28. (Currently Amended) The system of claim 27 wherein the nanocomposite comprises less than 10 percent by weight of nanoclay ~~particles~~.

29. (Currently Amended) The system of claim 28 wherein the nanocomposite comprises less than 5 percent by weight of nanoclay ~~particles~~.

30. (Currently Amended) The system of claim 29 wherein the nanocomposite comprises less than ½ percent by weight of nanoclay ~~particles~~.

31. (Original) The system of claim 23 wherein the nanoclay comprises natural clays, synthetic clays, modified phyllosilicates, or combinations or blends thereof.

32. (Original) The system of claim 23 wherein the polymer binder comprises a thermally curable polymer.

33. (Original) The system of claim 23 wherein the polymer binder comprises a photo-curable polymer.

34. (Currently Amended) The system of claim 23 wherein the substrate comprises:

a plurality of conducting layers; and

a nanocomposite inter-layer dielectric (ILD) sandwiched between the conducting layers, wherein the nanocomposite ILD layer includes a nanocomposite comprising a polymer binder having a plurality of nanoclay ~~particles~~ platelets dispersed therein, the nanoclay ~~particles~~ platelets having ~~a high~~ an aspect ratio equal to or greater than about 50.

35.-56. (Canceled)